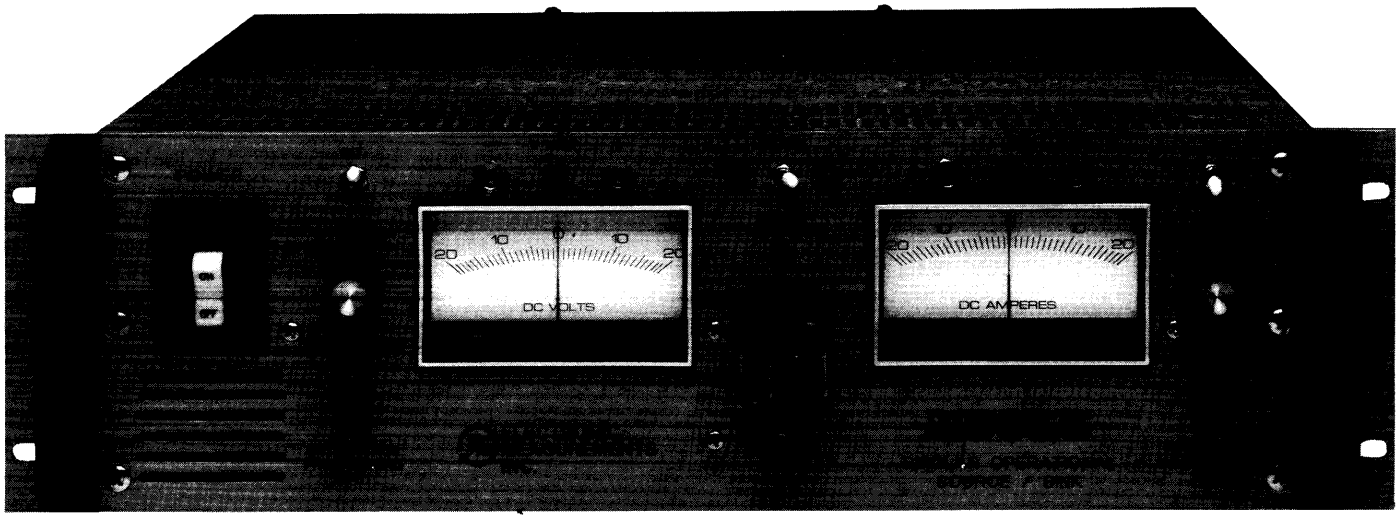


A Bipolar Operational Source/Sink power supply that provides a dozen functions in addition to delivering DC voltage and current

Four modes of operation

- A bipolar power supply, delivering a positive or negative voltage
- An operational power supply
- A sourcing power supply, delivering positive and negative current when the supply is the voltage driving source for the current
- A sinking power supply, dissipating power from the load within the power supply itself

More than a dozen functions

- DC power supply
- Electronic load
- Voltage source
- Power-pulse generator
- Current source
- Power-function generator
- Direct-coupled amplifier
- Variable-gain amplifier
- Fast-slewing power supply
- DC amplifier
- AC power supply
- Differential amplifier
- Signal-inverting amplifier

The versatility you expect from Electronic Measurements

The BOS/S is a series of truly versatile instruments that serve a wide variety of applications. The instruments are designed to be simple to operate, while providing a full range of useful functions.

Output of The BOS/S Series is controlled as either a current or a voltage via front-panel adjustments. Control may be either internal or external, and is switch-selected. A 10-turn potentiometer varies voltage from −V maximum to +V maximum. External voltage control can be accomplished via a source of ±10 V, or other values depending on selection of external program resistors.

Current, like voltage, is controlled by a 10-turn potentiometer. An optional digital control board allows remote control of the unit's functions via IEEE-488 or RS232 standard data-transfer protocols. Control Channel Programming resolution is 16-bits, positive and negative. Limit channels are each 8-bit. Optional analog readback is either 16 or 12-bit.

While The BOS/S Series is a versatile product, Electronic Measurements didn't ignore its basic function — bipolar operational power supply. All the traditional controls and features found in the industry standard supply are retained in The BOS/S Series.

These standard features include adjustable output-voltage and output-current limiting, indications of mode and remote operation, and analog or digital voltage and current meters.

The BOS/S is a new design, and incorporates technology that drastically improves the power supply's cost/performance ratio, size, weight, RMS power rating, bandwidth, and slew rate.

What is a "Bipolar Operational Source/Sink" supply?

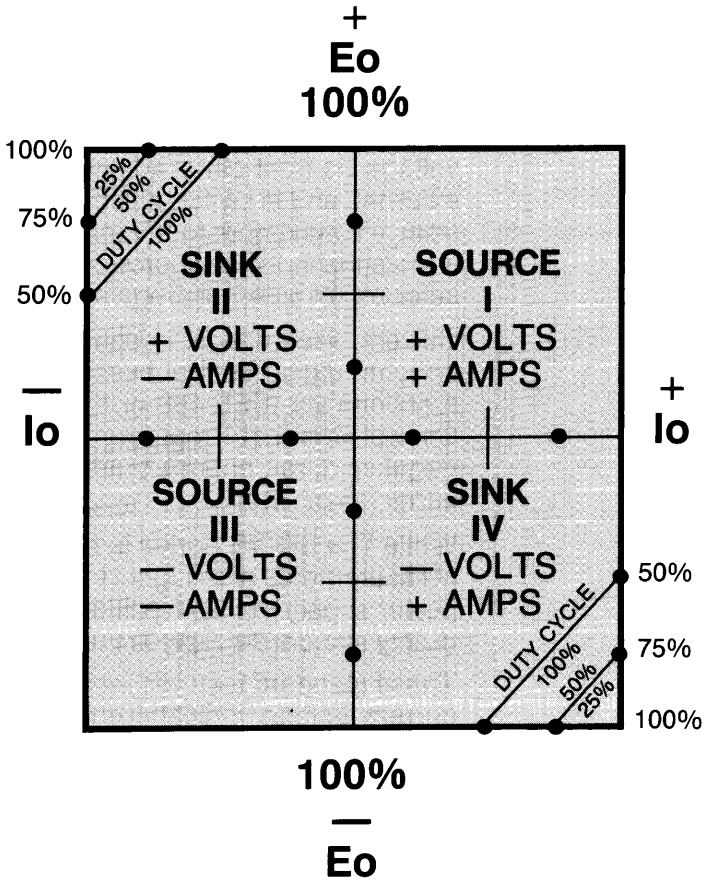
The BOS/S is more than a basic power supply. It functions in four basic modes — bipolar, operational, source and sink. Each mode has characteristics that make it suitable for specific applications. A basic description of these modes helps to explain the versatility of the supply.

Bipolar: A bipolar power supply produces a negative or positive voltage with respect to ground. In The BOS/S, any voltage within the positive and negative limits of the supply can be delivered at the output. Characteristics of the output are determined through front-panel adjustment or by remote control.

Operational: Think of an operational power supply as a powerful operational amplifier. Through proper selection and placement of feedback resistors, an op amp can differentially amplify or attenuate a signal, amplify or attenuate and invert a signal, or amplify a signal without inversion. The BOS/S can perform all of these functions at 15 V/μs — and at a 400-W power level.

Source: A sourcing supply provides current in the conventional direction. When power supply output is positive, current flows from its output to ground. When the output is negative, current flows into its output. The supply is the stimulus and the source of current and power flow. The BOS/S can provide positive and negative current at rates of change similar to its voltage response.

Sink: A sinking power supply absorbs or dissipates power that originates in the load. In The BOS/S, current flows into the supply while the output is positive. Current flows out of the supply when the output is negative.



A sourcing supply operates only in quadrants I and III. A sinking supply operates only in quadrants II and IV. The BOS/S operates in all four quadrants with either polarity of voltage, passing from positive through zero to negative and back again.

A full complement of features

Circuit Breaker: AC power is switched to the power supply and fault current limited, protecting the line and units connected to the supply from damage.

Voltage Programming Input: An external program source can be connected to this port which provides differential input and amplitude limits of ±10 V for full-scale output, input impedance of 10 K, and a common-mode limit of ±5 V. Programming gain is varied by adding a resistor of the appropriate value to the terminal strip at the rear of the unit.

Voltage and Current Control: A 10-turn potentiometer controls output voltage and current with a resolution of .017% of full output rating.

Selection of Voltage and Current Control: A switch selects internal control via the potentiometer or external control via the voltage programming unit.

Voltage and Current Boundary Control: Potentiometers set the boundary limits for positive and negative output voltage and current. Adjustment is independent of voltage and current control settings, and external voltage or current programming units. An LED indicates when any of these limits is reached.

Mode Switch: A front-panel switch selects voltage or current control. LEDs show the controlling function.

Output Terminals: Five-way binding posts are provided for positive and negative output, sense, and chassis ground.

Meters: Voltage and current meters (digital only on 100 W & 200 W units) display the value and polarity of voltage and current during steady-state or slowly-varying inputs.

Digital Control: An optional digital control interface allow programming of most front panel functions via IEEE-488 or RS232 data transfer protocols.

Series Operation: The BOS/S may be operated independently in series within ±500 V of ground.

Parallel Operation: The BOS/S may be operated in parallel for greater current capacity, using a master/slave parallel connection.

Cooling: All units have a built-in high-velocity fan that exhausts air to the rear.

Isolation: Output may float up to ±500 V of ground. The AC input has a hi-pot rating, and case-to-output isolation is 2500 V RMS.

Operating Temperature: The BOS/S will operate from 0 C to +55 C, and can be stored from −40 C to +85 C.

Mounting: The BOS/S is designed to be either bench or rack mounted. All ¾-rack models require mounting brackets, which are supplied with each unit on request.

Protection: The BOS/S is fully protected from all common sources of failure, including over-voltage and over-temperature. Excess heat-sink temperatures will shut down the unit.

Input Requirements: The BOS/S will operate either from 105 to 125 VAC or from 210 to 250 VAC, at 50 or 60 Hz. Maximum input current is 2.2 A for 100 W units, 5.0 A for 200 W units, and 10.0 A for 400 W units.

REGULATION

Influence	Maximum Effect Voltage	Current
Source Voltage (%)	0.005	0.005
Load change (100%)	0.005	1.0 mA
Time (8 hr. at ambient temperature, %	0.008	0.008
Temperature (%/C)	0.01	0.03
Ripple (RMS, return grounded)	3.00 mV	0.05%

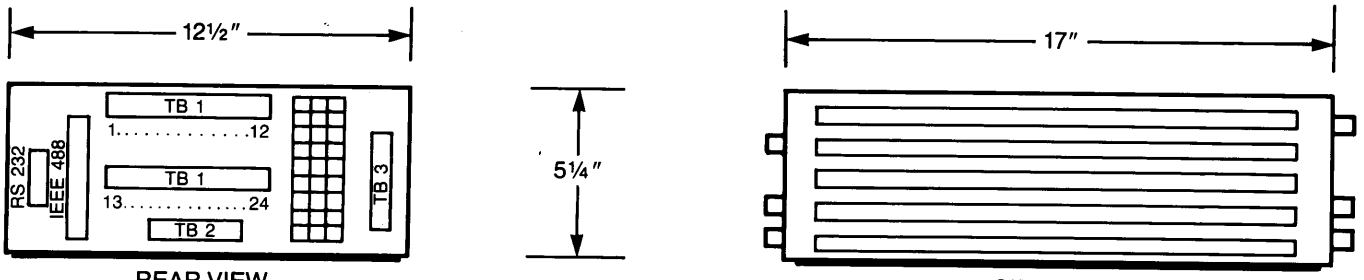
DYNAMIC SPECIFICATIONS

Model	DC Output Range Eo	Io	Bandwidth* DC to F<3 dB Full Power V	I	Slewing Rate Maximum Load 10 to 90% Swing V	I
100 W						
BOS/S 20-5	±20 V	± 5	20 KHz	15 KHz	1.6V/μs	.4A/μs
BOS/S 50-2	±50 V	± 2	20 KHz	15 KHz	4V/μs	.15A/μs
BOS/S 100-1	±100 V	± 1	20 KHz	15 KHz	7V/μs	.08A/μs
200 W						
BOS/S 20-10	±20 V	±10A	20 KHz	10 KHz	1.6V/μs	.8A/μs
BOS/S 36-6	±36 V	± 6A	18 KHz	15 KHz	3V/μs	.5A/μs
BOS/S 50-4	±50 V	± 4A	18 KHz	12 KHz	4V/μs	.3A/μs
BOS/S 72-3	±72 V	± 3A	18 KHz	12 KHz	5.8V/μs	.25A/μs
BOS/S 100-2	±100 V	± 2A	18 KHz	12 KHz	6V/μs	.15A/μs
400 W						
BOS/S 20-20	±20 V	±20A	10 KHz	12 KHz	1.6V/μs	1.6A/μs
BOS/S 36-12	±35 V	±12A	20 KHz	13 KHz	3V/μs	1A/μs
BOS/S 50-8	±50 V	± 8A	25 KHz	12 KHz	4V/μs	.7A/μs
BOS/S 72-6	±72 V	± 6A	20 KHz	12 KHz	5.8V/μs	.5A/μs
BOS/S 100-4	±100 V	± 4A	15 KHz	10 KHz	6.0V/μs	.3A/μs
BOS/S 200-2	±200 V	± 2A	10 KHz	2 KHz	4.0V/μs	.05A/μs

*Bandwidth specifications apply to purely resistive load impedances. For other applications, contact EM Engineering to discuss possible effects of the load on the power supply.

Mechanical Specifications

100 W & 200 W



REAR VIEW

SIDE VIEW

FOR MOUNTING 100 W & 200 W USE RA5

TB 1 DETAIL

1.	I Amp Out	13.	– Lim In
2.	I Gain R	14.	– Lim V
3.	I Inv In	15.	+ I Lim In
4.	Gnd	16.	+ I Lim V
5.	I + In	17.	– I Lim In
6.	V Amp Out	18.	– I Lim V
7.	V Gain R	19.	V Monitor
8.	V Inv In	20.	I Monitor
9.	Gnd	21.	On/Off
10.	V + In	22.	On/Off
11.	+ V Lim In	23.	
12.	+ V Lim V	24.	Comm

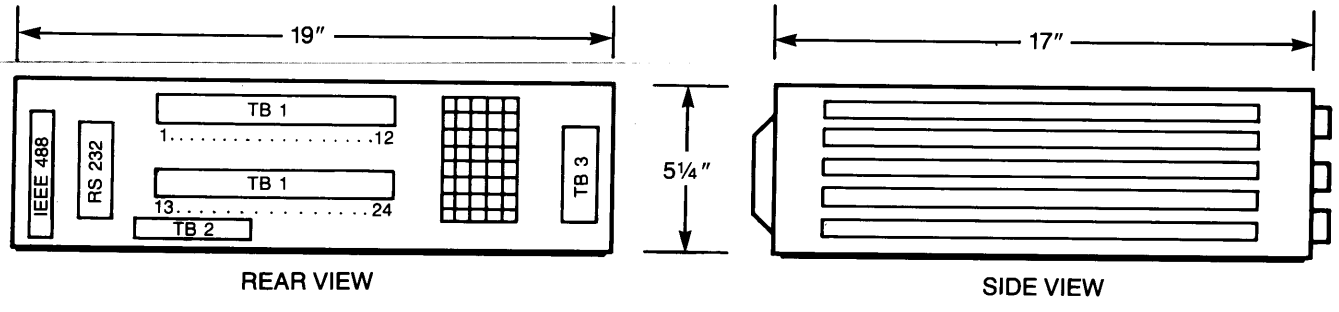
TB 2 DETAIL OUTPUT

⊖ GND −OUT −SENSE +SENSE +OUT ⊖

TB 3 DETAIL

⊖
AC
AC
GND
⊖

400 W



REAR VIEW

SIDE VIEW

WEIGHTS:		
100 W=36 lbs	200 W=40 lbs	400 W=55 lbs

How to Order

BOS/S XXX—XX—X—X—X—X—( )

DC VOLTAGE

DC CURRENT

ADD PM FOR 19″ PANEL MOUNTING ON 100W AND 200W MODELS

	AC INPUT		PANEL METERS		PROG		OUTPUT
1	115VAC 50/60HZ 1 Ø	—	ANALOG	—	NONE	1	NO OUTPUT READBACK
2	220VAC 50/60HZ 1 Ø	D	DIGITAL	1	RS232	2	12 BIT V & I READBACK
3				2	IEEE 488	3	16 BIT V & I READBACK
4				3	RS232 & IEEE 488		
5							
6							
7							
8							
12							

EXAMPLE: BOS/S 20—20—1—D = 20V 20A 115VAC DIGITAL METERS
BOS/S 40—10—2—2 = 40V 10A 220 VAC IEEE488

NOTES:
1. 200W BOS/S DIGITAL METERS ONLY.
2. STANDARD COLOR DARK BROWN ON TAN.
3. 400W STANDARD WITH 19″ PANEL MTG, 200W ADD SUFFIX IF PANEL MTG REQ'D.

ELECTRONIC MEASUREMENTS INC.

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Neptune, NJ 07753
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Fax: 908-922-9334